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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/518,952

05/10/2005

James Thomson

CAF-33202/03

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7590

10/26/2007

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EXAMINER

LEE, CHEUNG

ART UNIT

PAPER NUMBER

2812

MAIL DATE

DELIVERY MODE

10/26/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/518,952

Applicant(s)

THOMSON, JAMES

Examiner

Cheung Lee

Art Unit

2812

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) 20-40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,8,9,12-14,17-19 and 41 is/are rejected.
- 7) ☒ Claim(s) 2,5-7,10,11,15,16 and 42 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 5-2-05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Notice to Applicant

1. Applicant's Preliminary Amendment filed on March 2, 2005 has been entered and made of record.

Election/Restrictions

2. Applicant's election without traverse of Group I, claims 1-19 and 41-42 in the reply filed on September 5, 2007 is acknowledged.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on May 2, 2005 was filed before the first action on the merits. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Objections

4. Claims 2 and 13 are objected to because of the following informalities:
 - In claim 2, line 4, substitute "oxidising" with --oxidizing-- before "atmosphere".
 - In claim 13, line 3, substitute "a" with --the-- before "substrate".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 3-4, 9, 12, 17 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Hill et al. (US Pat. 5534312; hereinafter "Hill").
6. Referring to figures 1-3 and related text, Hill discloses [Re claim 1] a method for forming metal deposits on a substrate comprising: a) depositing a photosensitive organometallic compound 41 (col. 3, lines 24-40; col. 6, line 47-col. 7, line 45) onto a substrate 44; b) irradiating the photosensitive organometallic compound with UV radiation (col. 2, lines 46-55; col. 4, line 65-col. 5, line 6; see claim 5); c) reducing the irradiated photosensitive organometallic compound to form metal deposits adhered to the substrate (col. 2, lines 58-63; see claim 10); d) removing any degraded photosensitive organometallic compound residue and unaffected photosensitive organometallic compound from said substrate (col. 6, lines 23-28; see claim 9).
7. Hill discloses [Re claim 3] wherein the metal deposits are of a substantially continuous thin 'sheet-like' film configuration (col. 5, lines 55-60; see fig. 2E).
8. Hill discloses [Re claim 4] wherein metal lines of less than 70 nm are formed on the substrate (col. 4, lines 23-37).
9. Hill discloses [Re claim 9] wherein the photosensitive organometallic compound comprises a metal chosen from the group of: palladium, copper, rhodium, tungsten, iridium, silver, gold and tantalum (see Example 1 and Table 1).

10. Hill discloses [Re claim 12] wherein the organometallic compound is deposited using a method from the group consisting of: a vacuum coating technique, a spinning technique, a surface tension coating technique or a hot spray technique (col. 4, lines 22-25).
11. Hill discloses [Re claim 17] metal deposits (70, 80) formed according to claim 1 (see "Summary of the Invention").
12. Hill discloses [Re claim 19] wherein the metal deposits have a thickness of about 5 nm to 20 nm (col. 4, lines 23-37).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 13-14, 18 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mendoza as applied to claim 1 above, and further in view of Case Law/Legal Precedent.
14. [Re claim 13] Hill fails to disclose expressly wherein a thin film of about 100 mg of photosensitive organometallic is deposited onto the substrate.

It would have been obvious to one of ordinary skill in the art at the time of the invention because it is a matter of determining optimum process conditions by routine experimentation with a limited number of species of result effective variables. These

claims are prima facie obvious without showing that the claimed ranges achieve unexpected results relative to the prior art range (see MPEP 2144.05; *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955); *Peterson*, 315 F.3d at 1330, 65 USPQ2d at 1382; *In re Hoeschele*, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969)).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use a certain amount of photosensitive organometallic, because it would have been to obtain a metal film with desired dimensions according to device needs and requirements.

15. [Re claim 14] Hill fails to disclose expressly wherein the UV radiation has a wavelength of about 260 nm.

It would have been obvious to one of ordinary skill in the art at the time of the invention because it is a matter of determining optimum process conditions by routine experimentation with a limited number of species of result effective variables. These claims are prima facie obvious without showing that the claimed ranges achieve unexpected results relative to the prior art range (see MPEP 2144.05; *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955); *Peterson*, 315 F.3d at 1330, 65 USPQ2d at 1382; *In re Hoeschele*, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969)).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use a certain short UV wavelength for irradiation, because it would have been to obtain higher pattern resolution.

16. [Re claim 18] Hill fails to disclose expressly wherein the metal deposits have a width of about 60 nm to 20 nm.

It would have been obvious to one of ordinary skill in the art at the time of the invention because it is a matter of determining optimum process conditions by routine experimentation with a limited number of species of result effective variables. These claims are prima facie obvious without showing that the claimed ranges achieve unexpected results relative to the prior art range (see MPEP 2144.05; *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955); *Peterson*, 315 F.3d at 1330, 65 USPQ2d at 1382; *In re Hoeschele*, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969)).

The motivation statement stated in claim 13 also applies.

17. Hill discloses [Re claim 41] wherein the metal deposits are of a configuration of a substantially narrow line (see fig 2E), But Hill fails to disclose expressly wherein the metal deposits are nanometer dimensions.

It would have been obvious to one of ordinary skill in the art at the time of the invention because it is a matter of determining optimum process conditions by routine experimentation with a limited number of species of result effective variables. These claims are prima facie obvious without showing that the claimed ranges achieve unexpected results relative to the prior art range (see MPEP 2144.05; *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955); *Peterson*, 315 F.3d at 1330, 65 USPQ2d at 1382; *In re Hoeschele*, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969)).

The motivation statement stated in claim 13 also applies.

18. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hill as applied to claim 1 above, and further in view of Hill et al. (US Pat. 6348239; hereinafter "Hill2").

19. [Re claim 8] Hill fails to disclose expressly wherein the photosensitive organometallic compound is a platinum organometallic.

Hill2 discloses platinum organometallic to be processed (col. 3, lines 30-53). Hill2 also discloses same metals as disclosed in Hill, such as copper, nickel, etc. (col. 3, lines 30-53). Therefore, platinum can be replaceable with other material disclosed in Hill.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use platinum organometallic to be processed, as taught by Hill2, because it would have been to obtain excellent high-temperature characteristics and stable electrical properties.

Allowable Subject Matter

20. Claims 2, 5-7, 10-11, 15-16 and 42 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cheung Lee whose telephone number is 571-272-5977. The examiner can normally be reached on Monday through Friday from 8:30AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Lebentritt can be reached on 571-272-1873. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Cheung Lee

October 24, 2007


MICHAEL LEBENTRITT
SUPERVISORY PATENT EXAMINER